SOME OBSERVATIONS ON THE VARIABILITY OF *TRICHARINA GILVA* (BOUD. APUD COOKE) ECKBL.

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SUMMARY. – Different, apparently contradictory, descriptions of *Tricharina gilva* are compared with each other and the collection here described and illustrated. They show a wide range of variability and the latter may, in several respects, connect the extremes.

RÉSUMÉ. – Quelques descriptions de *Tricharina gilva*, montrant des contradictions importantes, sont comparées entre elles et avec un échantillon, décrit ici, qui montre une variabilité considérable. C'est par ce matériel que les extrêmes sont plus ou moins liés.

Tricharina gilva is a rare species of operculate discomycetes, first described and depicted by E. BOUDIER from specimens collected near Montmorency, France. It was M.C. COOKE (1879) who first published this species in his *Mycographia* (plate 113 figure 406) from drawings sent to him by BOUDIER.

Tricharina gilva has since been found and described several times. Some of the published descriptions, however, show considerable discrepancies (COOKE, 1879; REHM, 1895; BOUDIER, 1904; SEAVER, 1928; GRELET, 1939; DENNIS, 1978) and are such that one would not even consider them to be conspecific.

The study of a recent rich collection of *T. gilva* from the Netherlands may throw some new light upon the variability of this species.

TRICHARINA GILVA (Boud. apud Cooke) Eckbl. – Fig. 1, 2

Peziza gilva Boudier *apud* Cooke, *Mycographia* 240, pl. 113 f. 406, 1879; Boudier, *Bull. Soc. mycol. Fr.* 1 : 104, 1885. – *Lachnea gilva* (Boud. apud

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Cooke) Saccardo, *Syll. Fung.* 8 : 185. 1889 Rehm in Rabenhorst *Kryptog.-Fl.* 1 (3) : 1049. 1895. – *Scutellinia gilva* (Boud. apud Cooke) O. Kuntze, *Rev. Gen. Pl.* 2 : 869. 1891. – *Tricharia gilva* (Boud. apud Cooke) Boudier, *Icon. Mycol.* Sér. 1. Livr. 2 : (3), Liste préliminaire 1904; *Hist. Classif. Discom. Eur.* 57. 1907. – *Patella gilva* (Boud. apud Cooke) Seaver, *North Am. Cup-fungi (Operc.)* 166. 1928. – *Trichophaea gilva* (Boud. apud Cooke) Gamundi, *Revista Mus. La Plata (N.S.), Secc. Bot.* 10 : 60. 1966. – *Trichariina gilva* (Boud. apud Cooke) Eckblad, *Nytt. Mag., Bot.* 15 : 60. 1968 (name change because of *Tricharia* Fée (FÉE, 1825) a generic name for follicolous lichens).

Apothecia gregarious, or closely crowded, superficial, sessile, 3-7 mm diameter, 2-4 mm high. Receptacle at first subglobular or subpyriform with a narrow opening at the top surrounded by short hairs, then cup-shaped, finally more flattened, dirty yellowish to brownish orange; consistency watery-fleshy; surface covered with short, stiff brown hairs; margin usually incurved, fimbriate by the tips of marginal hairs. Disc concave, finally often flat, even, brownish orange-yellow.

Hymenium (160-)200-240 µm thick.

Hypothecium often not clearly differentiated from the flesh, 25-35 µm thick, of closely compacted thin-walled subglobular cells 4-9 µm wide.

Flesh 45-100 µm thick near the base, but only 25 µm thick near the margin, consisting of intermingled hyphae 3-7 µm wide (*textura intricata*).

Excipulum clearly differentiated, 40-80 µm thick near the base, only 20-35 µm thick at the margin, consisting of subglobular or somewhat polyhedral thick-walled cells 14-30 µm across (*textura globulosa* to *textura angularis*), with brownish pigment between the cells of the outer layers, covered with pale brownish hairs especially near the margin.

Hairs of two different types, superficial or arising from the two outermost layers of excipular cells, single; type I near the margin, densely placed or fasciculate, 2-4(-5)-septate, (50-)70-160(-200) x 7-12 µm, straight or slightly curved, thick-walled (1.0-1.5 µm), blunt-tipped but finally often with acuminated apices; type II near the base, multi-septate, undulate, thick-walled (*c.* 1.0 µm), 90-200 (-300) x 6-11 µm, always blunt-tipped.

Asci cylindrical, narrower towards the base, rounded at the apex, 180-200 x 10-12 µm, usually 8-spored; the wall not staining blue with iodine.

Ascospores uniseriate, ellipsoid, length/breadth ratio (1,5-) 1.6-1.7 (-1.8), hyaline, (10.0-) 11.5-15.0(-16.0) x (7.0-) 7.5-8.5 (-9.0) µm, without refractive globules or granules, thin-walled (up to 0.5 µm), smooth, when mature with a very thin outer layer (up to 0.2 µm) staining blue in cotton- or methyl blue.

Paraphyses rather frequent, septate, slender, filiform, sparsely branched, hyaline, 2.0-2.5 µm thick, slightly enlarged up to 3.0-3.5 µm at the tip, not embedded in mucus, containing very small yellowish to brownish-orange granules (or droplets) staining green with iodine.

Habitat. - On three year old burnt ground amongst mosses, Estate «de Pol», near Gietlo, between Wilp and Klarenbeek, Prov. Gelderland, The Netherlands, 2 X 1982, G. PIEPENBROEK-GROTERS **1284** (L.).

As there was already an older homonym of *Tricharia* Boud. in existence, ECKBLAD (1968) changed the name into *Tricharina* Eckbl.

On comparing the different descriptions of *T. gilva*, relatively great differences can be observed in certain characters, usually considered to be of sufficient importance for the distinction of species.

The colour of the disc (hymenium) varies from greyish (COOKE, l. c.; BOUDIER, l. c.; GRELET, l. c.) via pale brown (REHM, l. c.; GRELET, l. c.), yellowish-brown (SEAVER, l. c.; DENNIS, l. c.) and rather warm brownish orange-yellow (in the collection under consideration) to yellow-orange (BREITENBACH & KRANZLIN, 1981). However, as seen from above, the colour consists of two components : the translucence of the brown pigment in the excipulum and in the hairs and the more yellowish to brownish-orange coloured granules in the paraphyses.

Whereas in many other species of discomycetes, the pigment is usually mainly concentrated on the terminal elements of the paraphyses, the small granules of pigment in *T. gilva* are more or less equally distributed over the full length. The green staining of the pigment granules with iodine may suggest the presence of a carotenoid component.

In my experience with many pigmented coprophilous and pyrophilous species of discomycetes, the amount of certain pigments often depends much on the intensity of light present during growth. Therefore, fruit bodies of the same species growing in more exposed places will be darker or have more pigment.

Considering the hairs on the outside of the receptacle, only a few authors (BOUDIER, l. c.; GRELET, l. c.) have noticed the presence of two different types of hairs. The sinuous hairs, present near the base of the receptacle remain easily unnoticed or are taken for rhizoids or substrate hyphae.

The closely placed hairs near the margin are relatively thin-walled if compared with those present in e. g. *Trichophaea* Boud., *Cheilymenia* Boud., or *Scutellinia* (Cooke) Lambotte. Their base is the superficial layers of the excipulum and never branching or rooting.

The points of the hairs are described as either sharp (BOUDIER, l. c.; REHM, l. c.) or blunt (DENNIS, l. c.); while both conditions were also found together (GRELET, l. c.; SEAVER, l. c.). According to SEAVER (l. c.), the hairs are blunt at first but become sharp-pointed as they mature. Such an explanation is in agreement with my observations (Fig. 1 d-f).

In the first fruit body that I studied of the collection described above, ellipsoid ascospores were found, measuring 10-12 x 7-8 µm, which strongly deviates from the sizes given by COOKE (14-16 x 7.5 µm) or BOUDIER (13-16 x 9-11 µm) for this species. On the other hand, they agree perfectly with the small ascospore sizes (10-12 x 7-8 µm) given by REHM for this species. REHM's

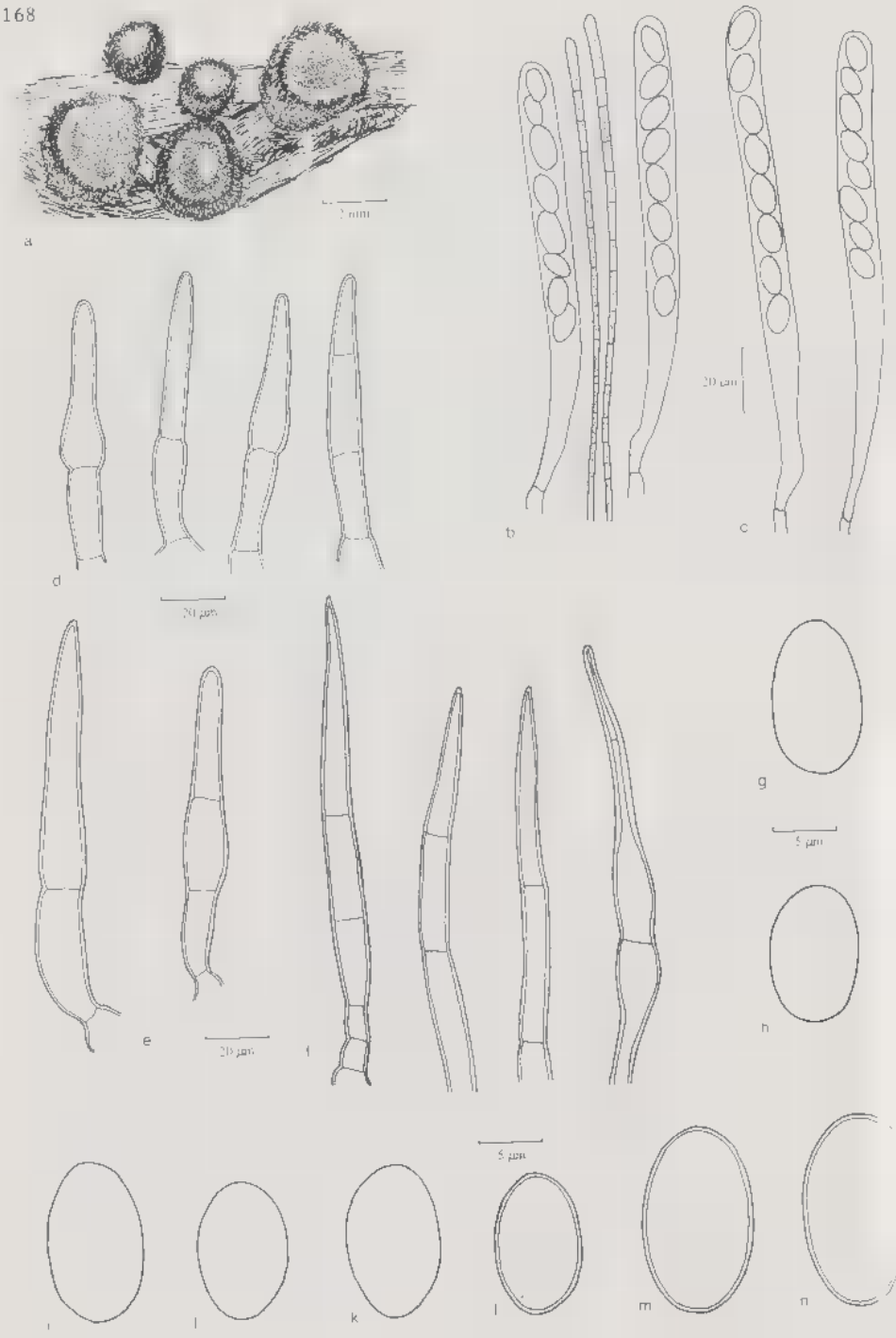

Fig. 1

Fig. 2

Fig. 1. – *Tricharina gilva* : a, habit of fruit bodies; b, c, asci and paraphyses; d, e, young hairs; f, old hairs; g-k, ascospores; l-n, id. in optical section.

Fig. 2. – *Tricharina gilva*, section of margin of apothecium.

description, however, might very well represent a different species but, on further study of the collection in hand, other fruit bodies showed much larger ascospores, measuring 14-16 x 7.5-9 µm, which fits well with the size given by COOKE, BOUDIER, and most of the other authors cited, except REHM.

Both small and large ascospores were sometimes found in the same fruit body in different asci and in a few cases even together in the same ascus (Fig. 1 b, c). In addition, the length/breadth ratio of the ascospores showed considerable variation (1.5-1.8). Therefore, with such a great variability of the ascospores, not even the distinction of a small-spored variety should be considered.

Tricharina gilva does not seem to be very demanding as regards habitat. It is found on moist ground in woods or gardens (COOKE, l. c.; BOUDIER, l. c.; REHM, l. c.; GRELET, l. c.) but also on old burnt ground which has become overgrown by mosses (SEAVER, l. c.; ECKBLAD, l. c.; DENNIS, l. c.; this paper).

Tricharina gilva proves to be a species showing a wide variability but fits well in the genus *Tricharina* as it was originally distinguished (BOUDIER, 1885) from *Trichophaea* Boud. on the basis of sporidioles or oil drops being absent from the ascospores.

I cannot agree with a fusion of the genera *Tricharia* Boud. and *Trichophaea* Boud. under the name *Trichophaea*, as suggested by GAMUNDI (1966, 1975). Apart from the absence of oil drops in the ascospores, there are other distinguishing characters. The consistency of the fruit body is softer (watery-fleshy), while the superficially implanted hairs are paler and not as thick-walled as in *Trichophaea*.

REFERENCES

BOUDIER J.L.E., 1885 – Nouvelle classification naturelle des Discomycètes charnus connus généralement sous le nom de Pezizes. *Bull. Soc. mycol. Fr.* 1 : 91-120.

BOUDIER J.L.E., 1904 – *Icones mycologicae*, ou *iconographie des champignons de France*. Série 1, Livr. 2. Liste préliminaire des noms des 600 espèces de champignons qui doivent être figurés dans les six séries de Boudier. *Icones mycologicae*. P. Klincksieck, Paris.

BREITENBACH J. & KRANZLIN F., 1981 – *Pilze der Schweiz*. Band 1. Ascomyceten (Schlauchpilze). Verlag Mykologia, Luzern. 313 p.

COOKE M.C., 1879 – *Mycographia seu icones fungorum. I. Discomycetes*. 215-267, pl. 101-113. London.

DENNIS R.G.W., 1978 – *British Ascomycetes*. Cramer, Vaduz, 585 p.

ECKBLAD F.E., 1968 – The genera of the operculate Discomycetes. A re-evaluation of their taxonomy, phylogeny and nomenclature. *Nytt. Mag. Bot.* 15 : 1-191.

FÉE A.L.A., 1825 – *Méthode lichénographique et genera*. F. Didot, Paris. 100 p.

GAMUNDI I.J., 1966 – Nota sobre Pezizales bonaerenses con comentarios sobre el «status» de algunos generos. *Revista Mus. La Plata (N.S.), Secc. Bot.* 10 : 47-68.

GAMUNDI I.J., 1975 – Fungi, Ascomycetes, Pezizales, *in* GUARRERA *et al.*, *Flora criptog. Tierra del Fuego*, T. 10 (3).

GRELET L.J., 1939 – Les Discomycètes de France d'après la classification de Boudier (Huitième fascicule). *Bull. Soc. bot. Centre-Ouest* 1939 : 19-37.

REHM H., 1895 – *Ascomyceten : Hysteriaceen und Discomyceten.* RABENHORST's Kryptog.-Fl. I (3) : 1041-1104.

SEAVER F.J., 1928 *The North American Cup-fungi (Operculates).* Seaver, New York, 284 p.